Forest Health Monitoring

Program Overview

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Forest Health Monitoring Program

- Initiated in 1990 to provide information on the status, changes, and trends in forest health and sustainability.
- Plot component of FHM integrated with Forest Inventory and Analysis program in 1999
- The FHM program provides information on all forest lands to land-managers and policy makers that affects, directly or indirectly, all Americans.

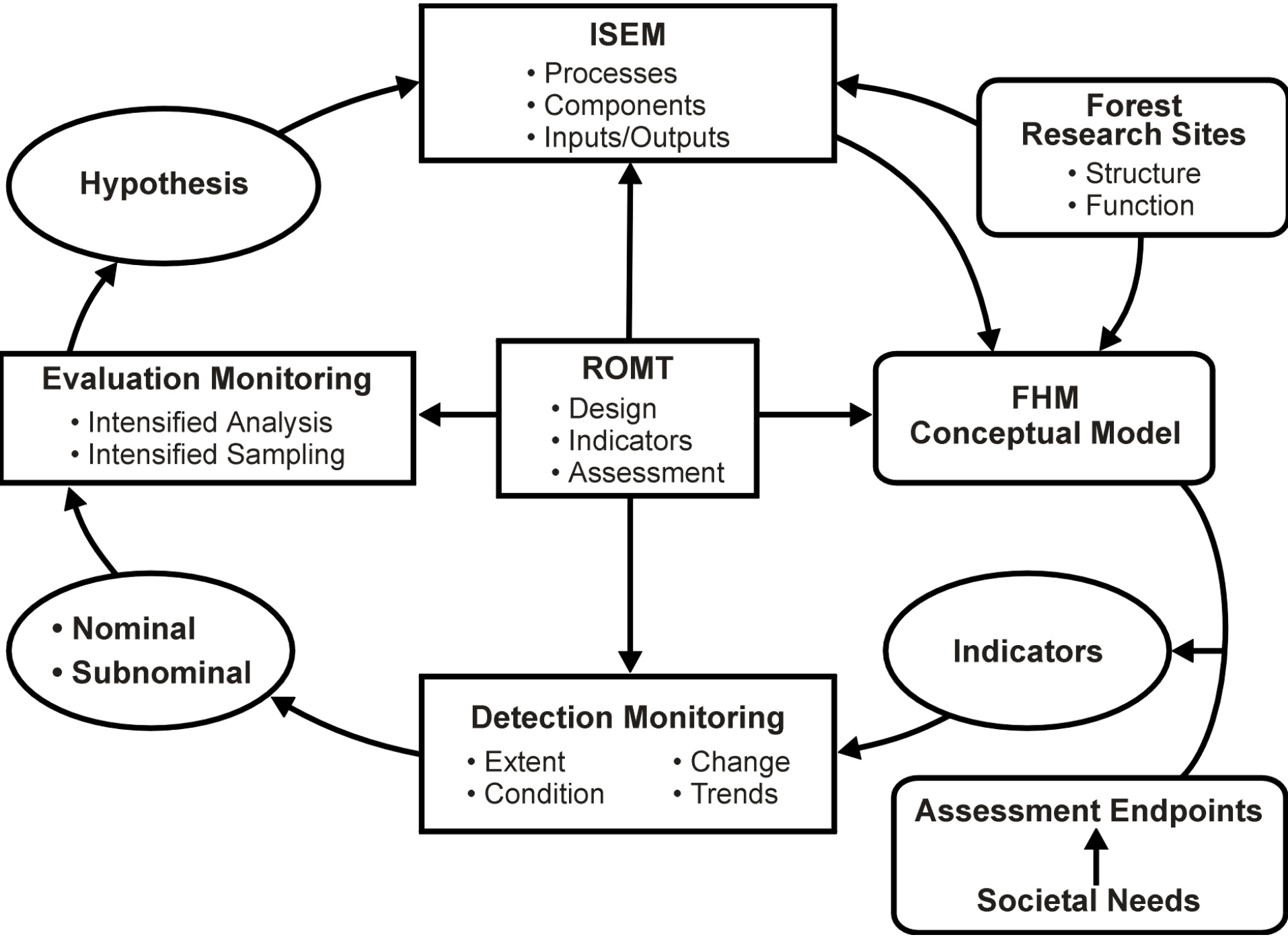
Forest Health Monitoring(FHM)

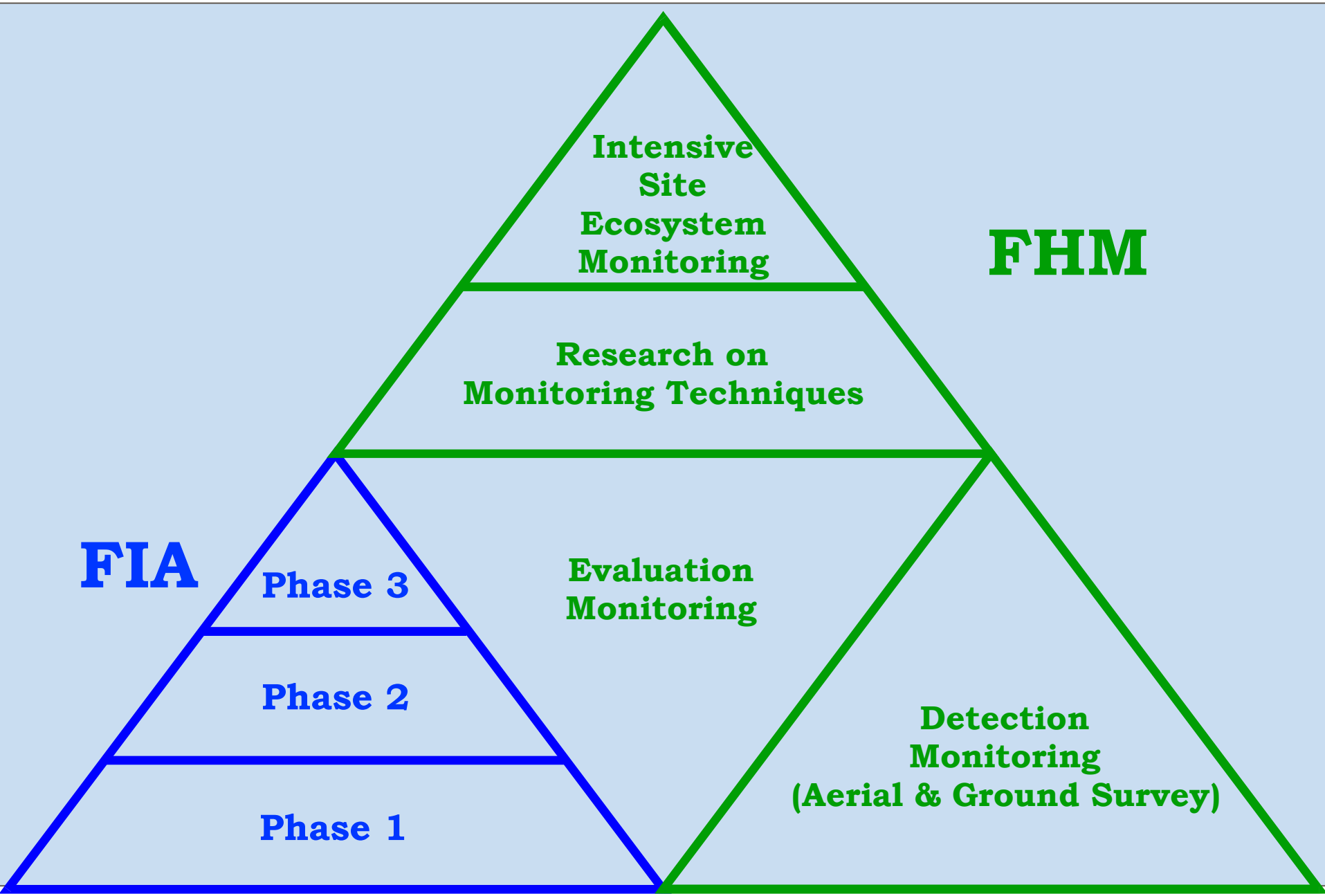
Objectives:

- Establish a monitoring system throughout the forests of the United States to determine detrimental changes or improvements that occur over time.
- Provide baseline and health trend information that is statistically precise and accurate.
- Report annually on status and changes to forest health.

FHM Components

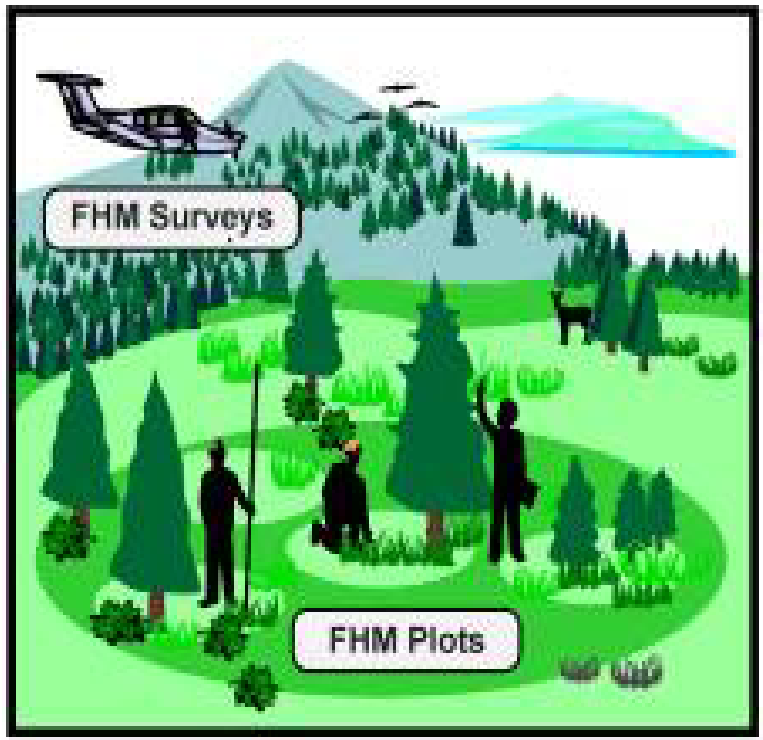
- Detection Monitoring (DM)
- Evaluation Monitoring (EM)
- Research on Monitoring Techniques (ROMT)
- Intensive Site Monitoring (ISM)


ISEM
• Processes
• Components
• Inputs/Outputs
Hypothesis
Forest
Research Sites
• Structure
• Function
Evaluation Monitoring
• Intensified Analysis
• Intensified Sampling
ROMT
• Design
• Indicators
• Assessment
FHM
Conceptual Model
• Nominal
• Subnominal
Indicators
Detection Monitoring
• Extent
• Condition
• Change
• Trends
Assessment Endpoints
Societal Needs


Intensive
Site
Ecosystem
Monitoring
FHM
Research on
Monitoring Techniques
FIA
Phase 3
Evaluation
Monitoring
Phase 2
Detection
Monitoring
(Aerial & Ground Survey)
Phase 1

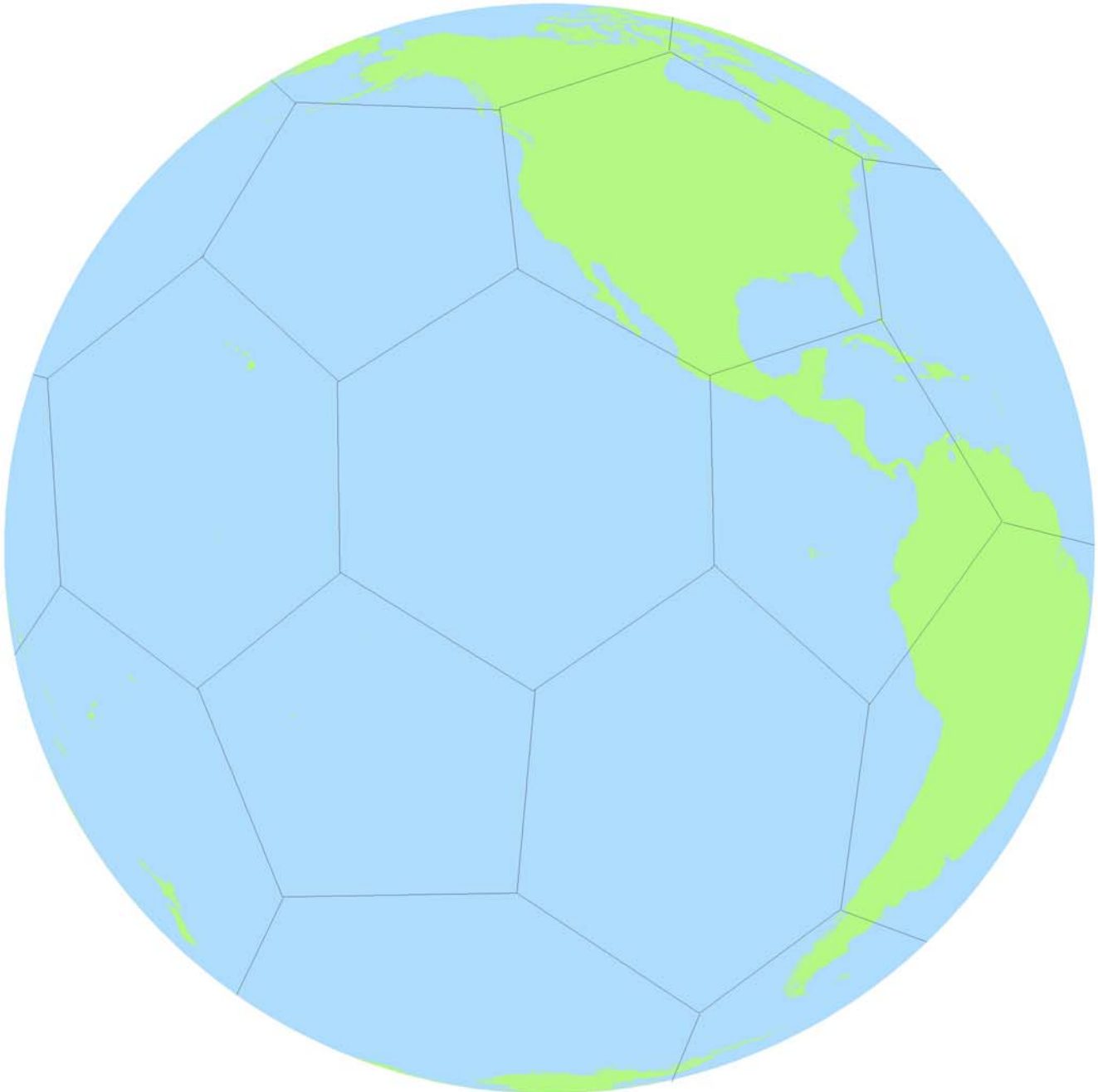
Detection Monitoring

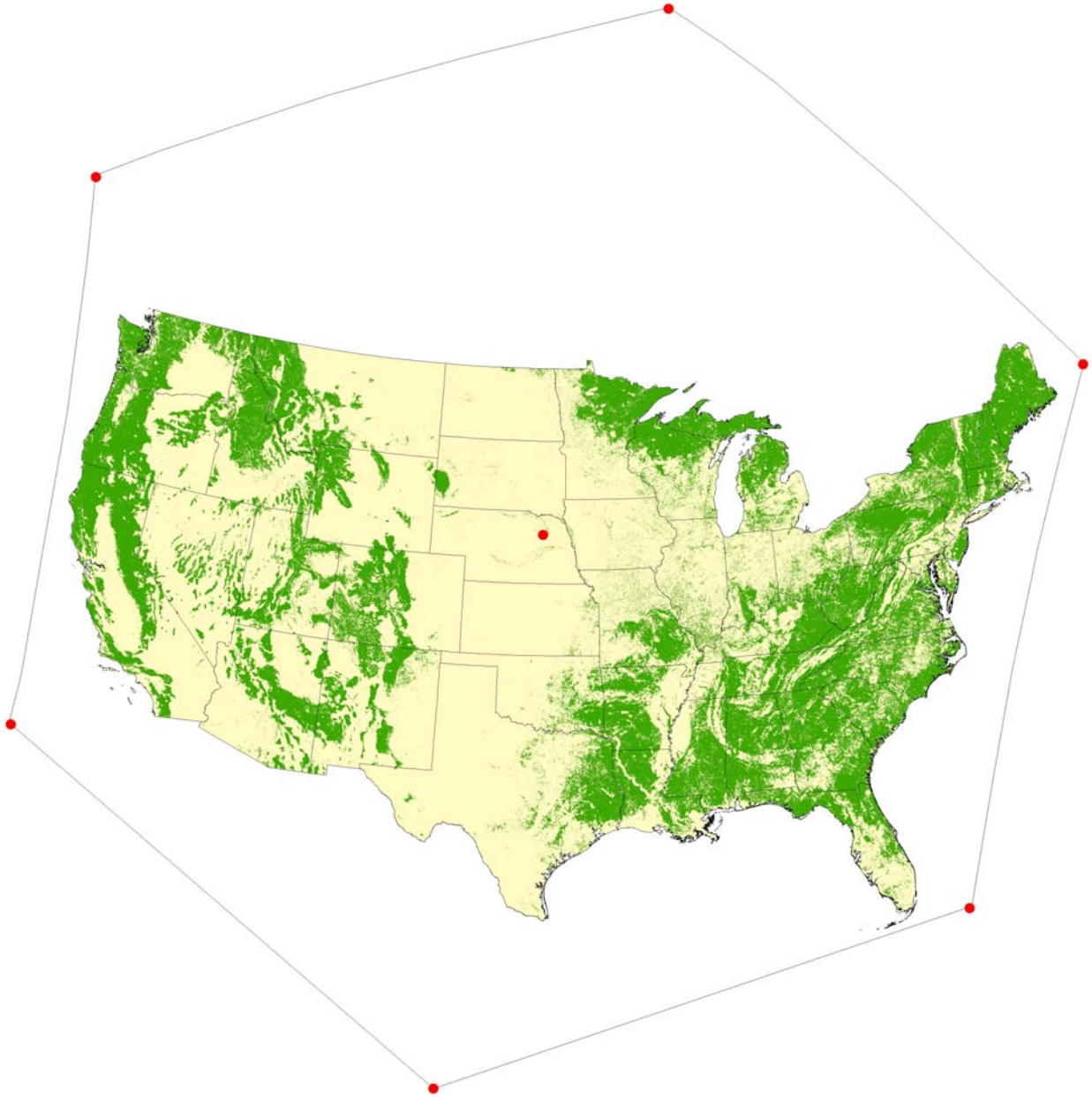
- Nationwide grid of permanent sample points
- Off-plot aerial and ground surveys

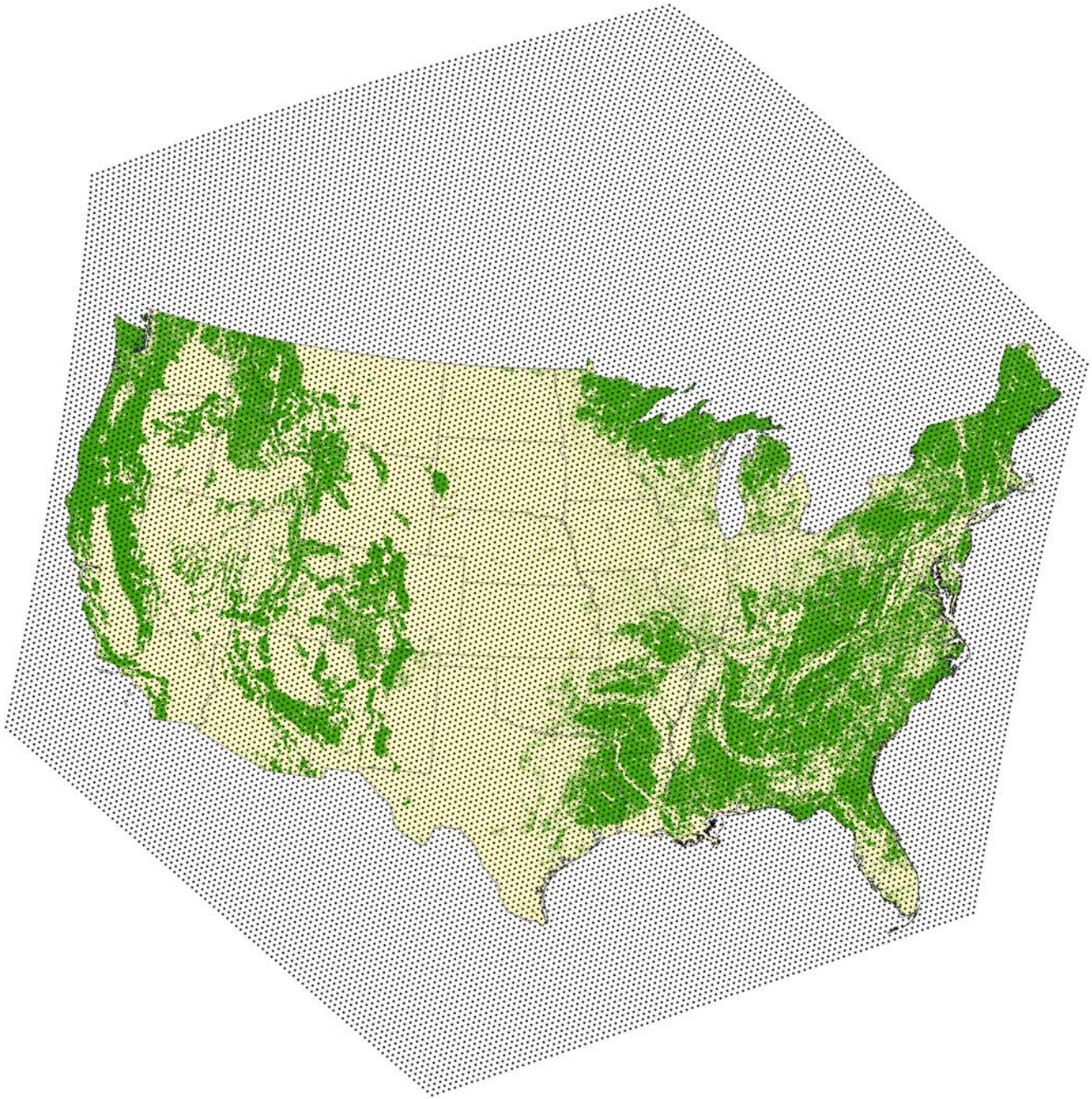


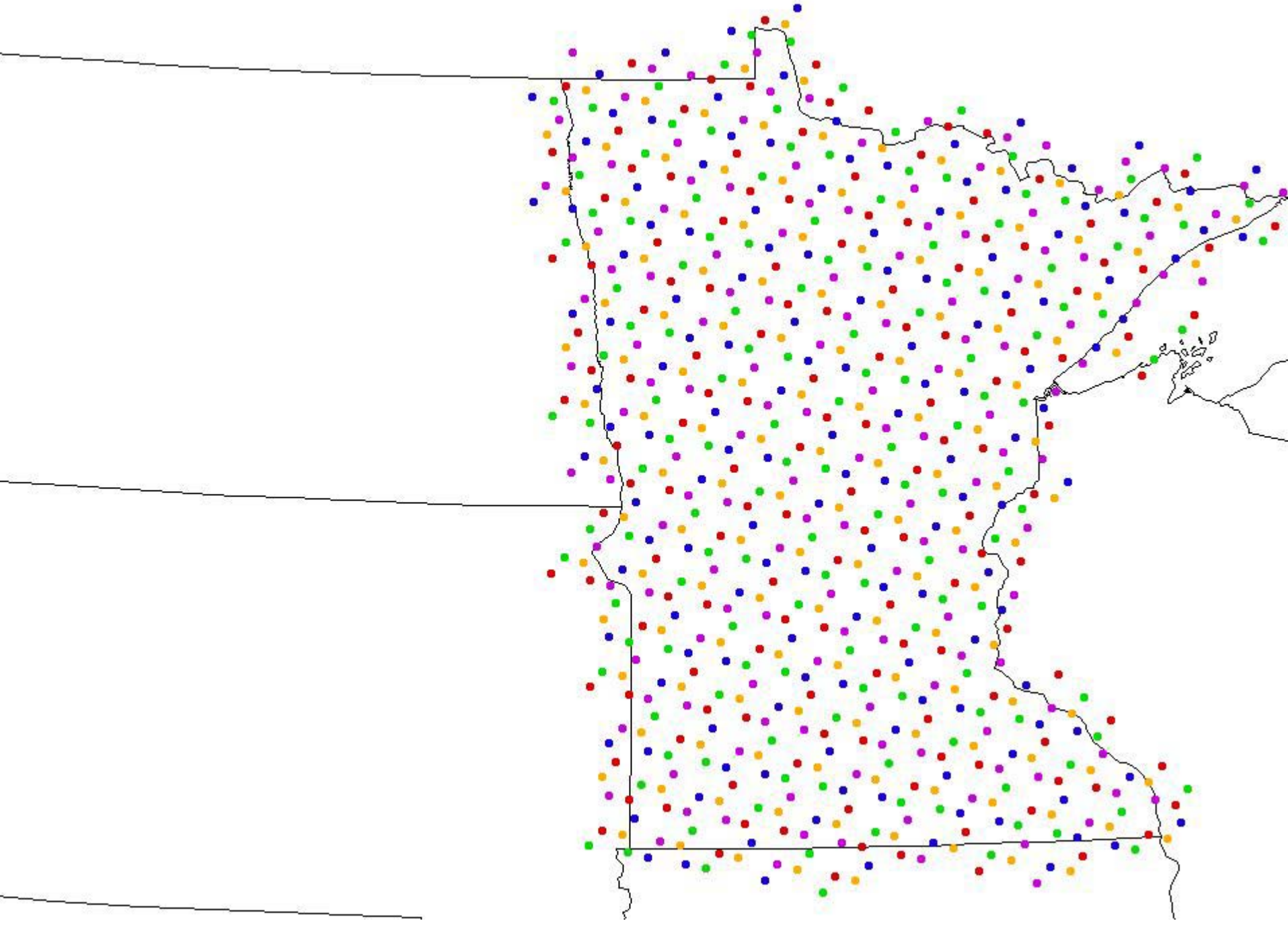
FHM Indicators

- Tree Growth
- Tree Regeneration
- Tree Crown Condition
- Tree Damage
- Tree Mortality
- Lichen Communities
- Ozone Bioindicator Plants
- Soil Morphology and Chemistry
- Vegetation Structure
- Plant Diversity

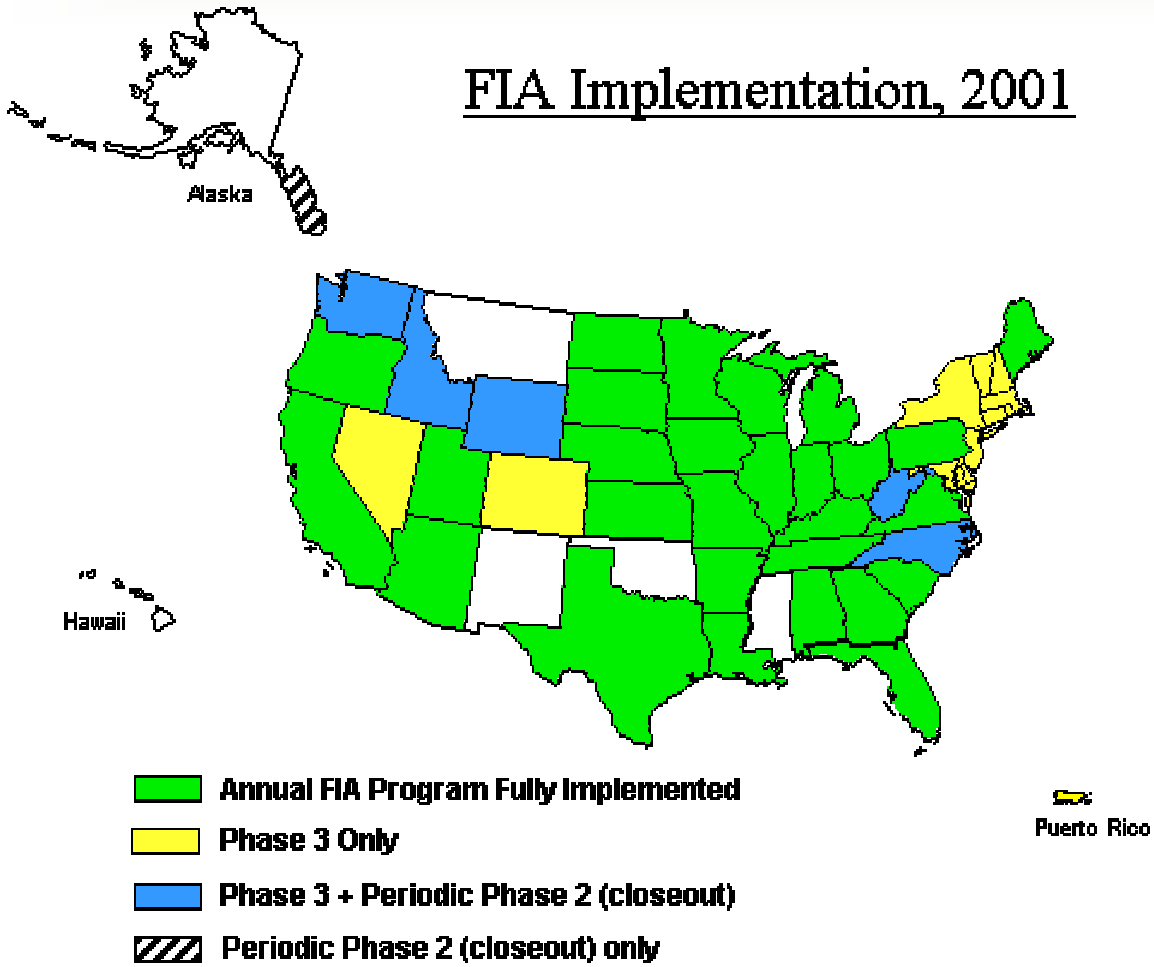








FIA Implementation, 2001




Ecoregion Province
Adirondack-New England Mixed Forest-Coniferous Forest-Alpine Meadow Province
American Semi-Desert and Desert Province
Arizona-New Mexico Mountains Semi-Desert-Open Woodland-Coniferous Forest-Alpine Meadow Province
Black Hills Coniferous Forest Province
California Coastal Chapparral Forest and Shrub Province
California Coastal Range Open Woodland-Shrub-Coniferous Forest-Meadow Province
California Dry Steppe Province
Cascade Mixed Forest-Coniferous Forest-Alpine Meadow Province
Central Appalachian Broadleaf Forest-Coniferous Forest-Meadow Province
Chihuahuan Semi-Desert Province
Colorado Plateau Semi-Desert Province
Eastern Broadleaf Forest (Continental) Province
Eastern Broadleaf Forest (Oceanic) Province
Everglades Province
Great Plains Steppe Province
Great Plains Steppe and Shrub Province
Great Plains-Palouse Dry Steppe Province
Intermountain Semi-Desert Province
Intermountain Semi-Desert and Desert Province
Laurentian Mixed Forest Province
Lower Mississippi Riverine Forest Province
Middle Rocky Mountain Steppe-Coniferous Forest-Alpine Meadow Province
Nevada-Utah Mountains-Semi-Desert-Coniferous Forest-Alpine Meadow Province
Northern Rocky Mountain Forest-Steppe-Coniferous Forest-Alpine Meadow Province
Ouachita Mixed Forest - Meadow Province
Outer Coastal Plain Mixed Forest Province
Ozark Broadleaf Forest - Meadow Province
Pacific Lowland Mixed Forest Province
Prairie Parkland (Subtropical) Province
Prairie Parkland (Temperate) Province
Sierran Steppe-Mixed Forest-Coniferous Forest-Alpine Meadow Province
Southeastern Mixed Forest Province
Southern Rocky Mountain Steppe-Open Woodland-Coniferous Forest-Alpine Meadow Province
Southwest Plateau and Plains Dry Steppe and Shrub Province

Evaluation Monitoring

- Determine the extent, severity, and causes of undesirable forest health changes.
- Address likely cause-and-effect relationships, identify associations between forest health and forest stress indicators.
- Identify management consequences and alternatives for reducing the effects of forest stress.
- Identify research needs.

Intensive Site Ecosystem Monitoring

- In depth monitoring of indicators to determine detailed information on key components and processes of selected forest ecosystems